Mobile commerce usage activities: The roles of demographic and motivation variables

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ABSTRACT

This research examines the relationships between demographic and motivation variables with m-commerce usage activities. Data was collected from 517 Chinese respondents, and hierarchical regression analysis was employed to test the research model. The results showed that age and educational level have significant relationships with m-commerce usage activities. However, these relationships vary between content delivery, transactions, location-based services, and entertainment activities. Intrinsic and extrinsic motivation are both important variables in determining m-commerce usage activities. The results from this study will be useful for m-commerce companies in formulating appropriate marketing strategies, as well as developing applications that will attract more users.

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1. Introduction

The emergence of mobile commerce (m-commerce) has gained the attention of both practitioners and researchers due to its potential impact on business and industry [7]. Unlike e-commerce, m-commerce allows transactions to be conducted through mobile devices over a wireless telecommunications network [48]. With m-commerce, users are no longer bound by geographical constraints as those in e-commerce [3]. M-commerce allows users to access the Internet, anywhere, anytime. Given that the number of mobile phone subscribers is overtaking the number of Internet users in some countries, telecommunication companies understand the potential of m-commerce and have invested heavily in its development [14]. One country which has captured the attention of tele-communications and m-commerce businesses is China. China is one of the world's largest mobile markets in terms of the number of subscribers [25,5,6].

The Chinese mobile market has been one of the largest in the Asia Pacific region since 2000, and in 2002, it became the world's largest mobile market [42]. Although China is still a developing country, its Internet and telecommunication infra-structure is quite advanced [25]. The Chinese government has been investing in the telecommunication sector since as early as the 1980s. With rapid technological growth and strong competition, the monthly subscription rates of mobile services in China are lower than many other low middle-income countries [6,24]. China currently has 957 million mobile phone subscribers. The figure is projected to grow to approxi-mately 1.3 billion mobile subscribers by 2014 [11].

Although these figures are promising and tend to support the potential for m-commerce growth in China, the actual level of m-commerce activities in China remains low. Mobile Tech Penetration [31] reported that some of the most common activities Chinese mobile users engage in include listening to music, followed by sending or receiving photos and videos, and playing downloaded games. These are mainly entertainment activities, and they often do not involve substantial monetary transactions. Activities such as purchasing products or services via mobile payments, subscribing to mobile content, mobile advertising, and mobile banking remain low in China. Driven by the potential of m-commerce, management informa-tion systems researchers have been conducting studies on

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m-commerce in recent years. However, despite the increasing amount of work published on the technological side of m-commerce, research on the strategies and applications of m-commerce remains limited [27,34]. There have been a few attempts to investigate the adoption of m-commerce such as those conducted by [50,1,52,9]. Several observations can be made about existing studies on Internet or m-commerce adoption. Firstly, studies of m-commerce usage among Chinese consumers have been limited. China is an important market as it has one of the largest numbers of mobile phone consumers. Secondly, most of these studies have developed their adoption models based on the Technology Acceptance Model (TAM). These studies have extended the TAM by including additional variables (e.g. Trust, Security). Thirdly, these studies have mainly studied the adoption of m-commerce based on consumers' intention to adopt or not adopt m-commerce. Studies concerning consumers' usage of m-commerce remain sparse. This is a significant research issue that needs to be addressed. As noted above, m-commerce activities in China mainly involve entertainment activities such as sending pictures or listening to music. Classifying various m-commerce activities (e.g. mobile banking, listening to music, mobile payments) under a general category of m-commerce [50], does not reflect the actual usage of m-commerce by consumers. Therefore this research examines the adoption of m-commerce in the context of m-commerce usage activities, instead of consumers' intention to adopt m-commerce. Lastly, most existing m-commerce adoption studies have either neglected using consumer demographic variables in their study [50], or have examined the indirect associations of demographic variables with m-commerce adoption [52]. Demographic variables have been found to have a significant influence on the Internet usage activities of users by [43]. Other variables such as motivation variables have also been found to have an influence on the Internet usage activities by researchers such as [43] and [2]. The direct associations between demographic profiles, together with motivation variables and m-commerce usage activities have not been examined by previous research. In order to bridge the gap in the existing m-commerce adoption literature, this study aims to investigate the relationship between demographic and motivation variables with m-commerce usage activities among Chinese users.

2. Literature review and hypotheses development

2.1. M-commerce activities

Past research has defined m-commerce as an extension of e-commerce [34]. Based on this definition, m-commerce is similar to e-commerce except that its transactions are conducted in a wireless environment, via a mobile device. However, this definition might be too narrow as it classifies e-commerce and m-commerce based on network medium and device. Feng et al. [13] have argued that m-commerce is more than an extension of e-commerce due to its differences in interaction styles, usage patterns, and value chain. Unlike e-commerce, m-commerce offers opportunities for new business models due its mobility and reachability characteristics [50]. A more complete definition of m-commerce comes from Tiwari and Buse [45] who view m-commerce as m-business. Tiwari and Buse [45] believe that m-commerce should not limit

itself to monetary value transactions, as this will neglect other m-commerce activities such as after sales services, and sending free games or music to users. Tiwari and Buse [45] also state that m-commerce does not necessarily have to operate through wireless telecommunications networks [50,45]. This study will therefore adopt a broad definition of m-commerce which is "any transaction, involving the transfer of ownership or rights to use goods and services, which is initiated and/or completed by using mobile access to computer-mediated networks with the help of mobile devices."

This study concerns m-commerce usage activities. Mahatanankoon et al. [30] categorized m-commerce usage activities as: content delivery, transactions, location-based services, emergency purposes, and entertainment purposes. Such classifications are consistent with past literature such as Pagani [36], and Ngai and Gunasekaran [34]. Furthermore, the categorization of m-commerce usage activities has been empirically validated by Mahatanankoon et al. [30] via first and second order confirmatory factor analysis. Accordingly, this study will adopt m-commerce usage activities proposed by Mahatanankook et al. [30] and divide m-commerce activities into content delivery, transactions, location-based services, and entertainment. *Content delivery* deals with using a mobile device to search for and find information on the Internet. *Transactions* involves using a mobile device to transfer money between consumers and businesses. *Location-based services* involve activities such as "receiving time-sensitive discount tickets and receiving personal advertisements." [30] Lastly, *entertainment* involves using a mobile device for entertainment purposes such as playing games or listening to music.

2.2. Demographic variables

Most technology adoption studies in the past have been derived from models such as the Technology Acceptance Model (TAM) [10] and Diffusion of Innovation (DOI) model [39]. These models have been applied extensively in the study of m-commerce or mobile technologies adoption [50,53,28,9]. However, most of these studies have neglected to investigate the effect of demographic variables such as age, educational level, and gender on m-commerce adoption. Yang [52] is one of the few studies which have investigated the relationships between demographic variables and m-commerce adoption. However, Yang [52] has studied the influence of demographic profiles in perceived usefulness and perceived ease of use of m-commerce, rather than a direct investigation of their relationship with m-commerce adoption. In a study of m-commerce adoption, Wei et al. [50] report that most of the consumers surveyed in their research were young users and suggest that future studies should investigate whether their adoption model can be extended to users from various age groups. Investigating demographic variables' influence on m-commerce adoption will provide m-commerce providers the opportunity to better segment their consumers. Furthermore, an important strength of m-commerce is the ability to personalize services and information to consumers. Knowing the demographic patterns in m-commerce usage activities will also assist firms in improving their mobile advertising strategies. Similar to the study conducted by Teo [43], this study attempts to investigate the